Cast-iron having a crystalline structure, the shavings soon break, without causing so much friction as the hard ductile metals; cast-iron is therefore always worked dry, even when the acute edges of 60 degrees are thickened to those of 80 or 90, either from necessity, as in some of the small boring tools, or from choice on the score of durability, as in the largest boring tools and others. Brass and gun-metal are also worked dry, although the turning tools are nearly rectangular, as the copper becomes so far modified by the zinc or tin, that the alloys, although much less crystalline than cast-iron, and less ductile than copper, yield to the turning tools very cleanly without water."

The volume is beautifully printed; is illustrated by more than 700 wood cuts; and must become a text book.

Algebra Made Easy.—By T. Tate, Mathematical Master of the Training College, Battersea. Longman and Co.

"Algebra, which is peculiarly called the analytic art," says Mr. Tate, "exercises, in a way which no other subject can, those powers of analysis and abstraction, which would otherwise lie dormant and enfeebled. The philosopher, embracing within the comprehensive grasp of his intellect the known laws of the universe, was once a feeble-minded child; and in order that such a child may become a philosopher, its powers of analysis and induction should be cultivated, in a manner corresponding to its capabilities, at an early period of its intellectual development. While moral training, of a specific kind, should not be lost sight of, at the same time it is important to bear in mind, that the patient and reflective spirit which analysis engenders, gives a healthful tone to the character, and renders us more capable of appreciating and enjoying whatever is morally sublime or beautiful in nature or revelation."

We have not seen a book better calculated to lead to the study of this most important branch of education than Mr. Tate's unpretending volume. It is clear and simple, and, withal, small and inexpensive. We advise all who would gain some knowledge of the principles of algebra to purchase it forthwith.

Correspondence.

WANTED: A THOROUGHFARE.

Sir,—As the whole of the articles in your excellent publication tend to convenience, comfort, and health, will you allow me to call your attention to the want of a thoroughfare from the Strand to Holborn, say by continuing Pickett-place, talked of some twenty or thirty years since, to Serle-street, by Lincoln's-inn Hall to Great Turnstile. What a place for a great thoroughfare!

Having to go from Essex-street to Red-lion-square several times in the course of the day, the loss of time is most serious. It is really disgraceful to suffer the few dilapidated houses at the top of Pickett-place to block up what, but for them, would be a good thoroughfare. I know of no improvement that could be made at an small a cost. The press is the moral goad, which you, Mr. Editor, apply sometimes with right good will.—I am, &c.,

A SUBSCRIBER FROM THE COMMENCEMENT.

Strand.

COMMITTEE OF WORKS FOR LONDON.

Sir,—Your valuable little work is doing much good, and I am emboldened on that account to say a few words to you now, on one subject which has engaged much of my attention when perambulating this great metropolis,—it is to express my regret that there is not any Board (and I do not except the one lately formed for Metropolitan Improvements), taking a comprehensive view and checking an outlay of money on public buildings for *particular* purposes, and without any regard to the general effect.

I shall only allude at present to the expense incurred, a year or two ago, on the external front of the Admiralty, next to St. James's Park; had that building been *stuccoed*, and also one or two houses west of the Horse-guards (on the park side), what a good effect it would have had when viewed from the esplanade on which the Guards occasionally form. They *pointed* the brickwork, and coloured it, in such a way as to make as great a contrast as possible with the stonework of the Horse Guards. That esplanade would also be much improved by being extended to the margin of the water in the park. Do look at the fronts mentioned, from the park gate, when you are passing that way.

By M. Angelo Taylor's Act, all the *urinals* have been taken away, not only from the public thoroughfares, but even in the private corners of *back* streets, and no public ones are erected in other places. In consequence, poor men coming from the country, and without money to enter a public house, must walk miles before they can get relieved; it has aggravated disease previously existing, and been the origin of many complaints. It has shewn a want of feeling for the poor man, and cannot be too much reprobated and exposed; this duty may not be altogether within your province, but I think it is that of every considerate man, and I have therefore stated it to you in addition to the suggestion about the esplanade.

An Old Architect.

Dec. 28, 1846.

*** We need not tell our old readers, that we have long ago pointed out the want of these last-mentioned conveniences.

Miscellanea.

Character of Classic Art.—The most prominent character of classic art — nay of classic life and literature, is their perfect and thorough *seriousness*. For one Aristophanes or Plautus, we find a host of authors, only intent on elevating and instructing the people, point blank, without any circumflexes or inuendos whatever; authors—dreamy, rambling, soaring in quite other spheres than those of ephemeral and absurd amusement. The same it was with their art. They pictured and sculptured Silenus and satyrs and the like—but how rarely; and not knowing the modes of modern multiplication of art-products, whatever they did, they knew they did—for *eternity;* a very serious and ticklish admonitor indeed. An artist—a man, who *knows* that he stands before futurity, even only hopes so, will act quite differently from the penny or pound *catcher*. But it requires some brass to think so, to act so, at least. The *will*, however, is the first condition of the deed. The artist—the man who has staked his whole life on one idea, keeps this idea enshrined in a framework of adoration, love, reverence. And what would, we say, even any beauteous, intelligent woman think of a lover, who would speak of her or to her in a stream of jests, puns, and the like buffoonery? What we reverence, we joke not on—what we want the people to reverence, we will not let others make a laughing-stock of. Goethe was right (but not *understood*) when he said, "Times are worse than we imagine." Frantics often antecede idiocy and derangement; therefore, it may be, why some believe the age incurable.—[*Isis of Oken.*]

New Planing Machine.—Mr. Jub Shelden, of New Haven County, has invented a machine for planing boards, in which is combined more originality of mechanical movement, with judicious proportion and application, than has been combined in any new invention within the past year. In this machine, the inventor has boldly struck out on entirely new principles of operation, and there appears nothing about the machine which bears any resemblance to those in use. It carries a series of planing cutters, which work with a reciprocating motion, cutting transversely, but with oblique edges, in each opposite direction.—*Patent Journal.*

Science in Art.—A machine has been invented by Mr. Kingston, called the Carsoetype. Its purpose is to give certainty in drawing the lines of the human face. By means of this, the exact size of the several features and of the head is obtained. The portrait, in its shadowings, is afterwards completed by art on a ground of marble.

Silcock's Patent Planes.—Mr. Silcock has given much attention to the manufacture of planes, and has produced a very superior tool. He has invented three patent metallic planes to do the work of forty-nine planes made on the old plan, which seem worthy of examination.

Llandaff Cathedral Restorations.—The dean has issued a statement of the expenditure of the funds put into the hands of the chapter for the restoration of the cathedral, from which it appears, that though the work is progressing somewhat slowly, like the original construction, the eastern chapel has been completely restored at an expense of 1654*l.* 12*s.*; the eastern extremity of the south aisle, with its windows and open-work parapets, is in progress, and is estimated at the cost of under 300*l.* The next proposed alteration is the restoration of the choir. The present winter is dedicated to this in-door work, and the funds in their present state are considered inadequate to the completion of the lower story so high as the *Italian* cornice. The balance remaining in the banker's hands is stated at 225*l.*, and of the sums subscribed, 1,000*l.* still remain to be called in. Since this was printed, works have been actively commenced in the choir at its eastern end. A Norman arch of Bishop Urban's work has been opened out, commanding a perspective into the eastern chapel. The mouldings of this arch are in good preservation. Beneath this, a screen, of Bishop Marshall's work, A.D. 1480, has since been exposed. A sepulchral recess, in which the capitals of the side-shafts are executed in the style of 1200, is likewise now again disclosed to view in the south-east wall of the choir. Tradition assigns this as the tomb of St. Teilo, or rather of one of his three miraculously multiplied corpses. The Archbishop of Canterbury, Bishop of Bangor, and Bishop of St. Asaph have each subscribed 50*l.* towards the work.

Important to Iron Merchants.—In the High Court of Justiciary, Edinburgh, a case, in which Messrs. Vincent, Higgins, and Sons, iron merchants in Liverpool, were pursuers, and Messrs. Dunlop, Wilson, and Co., iron merchants in Glasgow, were defenders, came before the Lord Justice-General and a jury. The question in dispute arose out of an offer made by the defenders to the pursuers of 2,000 tons of pig-iron, at 65*s.* per ton; but, as the pursuers did not answer the letter containing the offer by return of post, the defenders held they were freed from it. The issue was couched as follows:—Whether, about the end of January, 1845, the pursuers purchased from the defenders 2,000 tons of pig-iron at the price of 65*s.* per ton? and whether the defenders wrongfully failed to deliver the same, to the loss, damage, and injury of the pursuers? Damages laid at 6,000*l.* The pursuers produced six witnesses to prove that, according to the practice in mercantile matters, they were not bound to answer in course of post, while the defenders brought forward an equal number to prove that the contrary was the practice, to render the transaction obligatory. The jury, after a short deliberation, returned a verdict for the pursuers—damages, 1,500*l.*

Lead Ores at Cape of Good Hope.—In the division of Albany, on the eastern coast of the Cape, near Algoa Bay, is found in the original formation a rather extensive bed of lead ore, which has only lately been mined. An experienced mineralogist, who had heard in England of these ores, purchased lands in the vicinity of Van Staden's River, and commenced to work them with practical men, after satisfying himself as to the productiveness of these ores. On an analysis lately by a competent person, 3,269 grains of ore produced 4·070 grains of sulphate of lead, 0·015 grains of sulphuret of antimony, 0·126 grains oxide of zinc (with traces of iron), and 0·383 grains sulphate of barium. If, from this the quantity of lead, antimony, zinc, and sulphur be calculated, it shews that—

3.269 grains of lead ore contain, in 100 parts,		
Lead	2,781 ..	85·07
Antimony	0,011 ..	00·34
Zinc, with traces of iron	0,021 ..	00·64
Sulphur	0,447 ..	13·67
	3,260	99·72

Buckingham Palace.—Sir,—It must have occurred to you, as it has to others, that the wings of Buckingham-palace are too *narrow*. Now, I would suggest (if not too late), that by making them double on each side, with an *open* colonnade between each wing and the addition, a handsome building would be the result, and would offer all the accommodation required.

C. F. A.

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